# ABSTRACT

Pulse parameters of a gas discharge laser system can be optimized and controlled for precision applications such as microlithography. Important laser pulse parameters typically vary in the beginning of a pulse burst, and the directionality of the output beam typically varies throughout the burst. In order to improve the performance of the laser system, the variation at the beginning of a pulse burst can be eliminated by extending the pulse pattern and shuttering the output during periods of significant parameter variation. A fast shutter such as an acousto-optical modulator can be used to prevent output during the burst transition processes. Elements such as acousto-optical cells also can be used in combination with a fast position sensor to steer the direction of the output beam, in order to adjust for variations in the direction of the beam between pulses in a burst.